**U.S. Department of Health and Human Services**
**Public Health Service**
**Centers for Disease Control and Prevention**
**National Center for Infectious Diseases**

# HEALTHCARE INFECTION CONTROL PRACTICES ADVISORY COMMITTEE

**June 17-18, 2002**
**Atlanta, Georgia**

## PARTICIPANTS

**HICPAC MEMBERS**

**Dr. Robert Weinstein, Chair**
**Dr. Jane Siegel, Co-Chair**
**Dr. Raymond Chinn**
**Dr. Alfred DeMaria, Jr.**
**Dr. James Lee**
**Dr. William Rutala**
**Dr. William Scheckler**
**Ms. Beth Stover**
**Ms. Marjorie Underwood**

**LIAISON MEMBERS**

**Ms. Loretta Fauerbach, Association for Professionals in Infection Control & Epidemiology (APIC)**
**Ms. Dorothy Fogg, Association of periOperative Registered Nurses (AORN)**
**Dr. Stephen Jencks, Centers for Medicare & Medicaid Services (CMS)**
**Dr. Chiu Lin, Food & Drug Administration (FDA)**
**Dr. James Steinberg, Society for Healthcare Epidemiololgy of America (SHEA)**
**Dr. Michael Tapper, Advisory Committee for the Elimination of Tuberculosis (ACET)**

**CDC STAFF**

**Dr. Michele Pearson, Executive Secretary**
**Dr. Miriam Alter**
**Dr. Matthew Arduino**
**Dr. Ermias Belay**
**Ms. Elizabeth Bolyard**
**Dr. Carolyn Bridges**
**Dr. Denise Cardo**
**Dr. Mary Chamberland**
**Ms. Linda Chiarello**
**Dr. Jennifer Cleveland**
**Ms. Amy Collins**
**Dr. Richard Ehrenberg**
**Dr. John Jernigan**
**Dr. Matthew Kuehnert**
**Ms. Harriette Lynch**
**Dr. Adelisa Panlilio**
**Dr. Lynne Sehulster**
**Dr. Steven Solomon**

**OTHERS**

**Dr. David Asher, FDA**
**Sandy Buhler, Kimberly-Clark**
**Dr. Murray Cohen, CDIC, Inc.**
**Terry Hargrader, 3M**
**Jennifer Harte**
**Joanne Ferrante**
**Minh Hoang**
**Dr. Marguerite Jackson, UCSD Med Center**
**Pollie Kitchers, Regent**
**Michele Marill, Hospital Employee Health**
**Jean Randolph, AAOHN**
**Ms. Emily Rhinehart**
**Wava Truscott, Kimberly-Clark**

## EXECUTIVE SUMMARY

**A meeting of the Healthcare Infection Control Practices Advisory Committee (HICPAC) was convened in Atlanta, Georgia, on June 17-18, 2002. Dr. Robert Weinstein served as Chair, Dr. Jane Siegel as Co-Chair, and Dr. Michele Pearson as Executive Secretary.**

**The Committee discussed two HICPAC guidelines currently in development. Dr. Jane Siegel presented a revised draft of the *Guideline for Preventing Transmission of Infectious Agents in Healthcare Facilities*. Discussion focused on the scope of the document and the section on multidrug-resistant organisms (MDROs). The authors will prepare a revised draft for presentation at the next HICPAC meeting. Dr. William Rutala reviewed the public comments received to date on the *Guideline for Disinfection and Sterilization in Healthcare Settings.***

**Dr. David Asher presented the concerns and activities of the Food and Drug Administration (FDA) related to transmissible spongiform encephalopathies (TSEs), with emphasis on the development of policies and recommendations for the handling of surgical instruments potentially contaminated with TSE agents. He pointed out that recommendations in the draft Disinfection and Sterilization Guideline are inconsistent with recent consensus recommendations of the World Health Organization (WHO). In an informal poll, HICPAC members favored the WHO recommendations over the recommendations in the current draft. Dr. Rutala will revise the Guideline as suggested, and HICPAC staff will arrange for an interim review of the Guideline by representatives from liaison agencies.**

**In a series of presentations, CDC staff updated HICPAC members on topics including nosocomial transmission of influenza, hepatitis C and healthcare personnel, and progress in developing an action plan for prevention of water-related diseases. Dr. Steve Jencks presented a revised list of practices for inclusion in the National Quality Forum (NQF) compendium of core practices to improve the safety of health care. The Committee also received updates on a series of meetings convened to consider expanded options for smallpox vaccination and on DHQP efforts to improve the way in which information is used in the healthcare system.**

**Dr. Weinstein informed the members of an upcoming review of the HICPAC guideline development process, announced the formation of a collaborative HICPAC/DHQP working group on bioterrorism, and provided a status report on guideline development. The group considered the constraints related to publication of HICPAC guidelines in the *MMWR* and discussed alternative formats and venues for the publication of future guidelines. Several HICPAC members presented reports of meetings they attended as HICPAC representatives. Tentative dates for future HICPAC meetings are October 21-22, 2002, and February 24-25, 2003.**

**MINUTES**

**A meeting of the Healthcare Infection Control Practices Advisory Committee (HICPAC), National Center for Infectious Diseases (NCID), was held on June 17-18, 2002, at the Swissôtel, Atlanta, Georgia. Dr. Robert Weinstein served as Chair, Dr. Jane Siegel as Co-Chair, and Dr. Michele Pearson as Executive Secretary.**

**WELCOME, INTRODUCTIONS, CONFLICTS OF INTEREST, OVERVIEW**
**Dr. Robert Weinstein**

**Dr. Weinstein opened the meeting, after which members and guests introduced themselves. Ms. Marjorie Underwood reported that she has been asked to participate in the American Institute of Architects= (AIA), Health Guidelines Revision Committee, to revise the 2001 edition of the *Guidelines for Design and Construction of Hospital and Health Care Facilities*. Ms. Beth Stover is serving as consultant to Becton Dickinson on its seminar on infection control. Other members reported no new conflicts of interest.**

***GUIDELINE FOR PREVENTING TRANSMISSION OF INFECTIOUS AGENTS IN HEALTHCARE FACILITIES* B REVIEW AND DISCUSSION OF DRAFT 3**
**Dr. Jane Siegel; Dr. Marguerite Jackson; Ms. Emily Rhinehart**

**Dr. Siegel presented the current draft. She called attention to the revision of the section on multidrug-resistant organisms (MDROs); the addition of Appendix B (MDRO algorithm and explanatory text); expansion of the section on bioterrorism agents; changes in the section on Creutzfeldt-Jakob disease (CJD); and addition of Tables 5, 6, and 7.**

**HICPAC suggestions and comments**
**Based on their review and discussion, Committee members had these suggestions:**

**<u>Scope of the document</u>**

- **Define the scope of the document in the Introduction and the Executive Summary.**
- **Clarify that the prevention focus extends to both healthcare workers and patients.**
- **In the Introduction and the Executive Summary, clarify that the Guideline is targeted to healthcare professionals who: 1) provide direct services, and/or 2) are responsible for training others. As appropriate, this audience can extract the recommendations/principles for other use (e.g., home health care) and adapt them for lay audiences. Change the language on page 3, lines 11-13 (Section I.A.).**
- **Clarify that the Guideline applies to all settings in which healthcare is delivered and in which transmission of infectious agents can occur. These include shelters and correctional facilities in which healthcare is delivered.**
- **Ensure consistency with other HICPAC guidelines (e.g., glove use; hand hygiene).**

- $ **Connect the Background section and the Recommendations. Limit Background text to information that provides a foundation for the corresponding recommendations.**
- $ **Reorganize Section II.B so that AOther considerations@ and ATransmission routes@ precede ASources of infectious agents@ and subsequent sections.**

**Agents of bioterrorism**

- $ **Separate vaccinia from smallpox, and add more detail on infection control issues.**
- $ **Include viral hemorrhagic fevers in Table 4, and refer to the *JAMA* 2002 article.**
- $ **In Table 4, delete modes of delivery from the first column (e.g., botulism).**
- $ **Include bioterrorism agents in Table 8, as appropriate.**
- $ **Expand the discussion to include all Category A agents, at least briefly. Refer to other documents for additional information.**

**Creutzfeldt-Jakob disease**

- $ **Delete Table 5. Refer to the Sterilization and Disinfection Guideline for complete information.**
- $ **Limit CJD content to relevant background information and recommendations related to patient care, mortuary procedures, and burial precautions.**

**Host/special populations**

- $ **In the Background section, include a rationale for and data to support the recommendations. Recommendations should focus only on unique aspects of these populations. Limit the recommendations to those that can prevent/decrease transmission.**
- $ **Briefly summarize data on burn units.**
- $ **Identify groups that require special actions/additional information. Consider developing this section into a table that specifies: type of special population; available data/no data/unresolved.**

**Protective apparel/respiratory protection**

- $ **Clarify/specify types of gloves, gowns, and masks.**
- $ **Distinguish between masks and respirators.**
- $ **Include use of N95 respirators for tuberculosis prevention, and refer to the Tuberculosis Guideline.**

**Immunization for healthcare workers**

- $ **Include separate recommendations for hepatitis B and smallpox.**
- $ **Add rubella.**

**MDROs**

- $ **Be sure that the discussion considers all available evidence and that all statements**

**are supported by data.**

- $ **Address issues of adherence and administrative support.**
- $ **Acknowledge that the available data apply to intensive-care units (ICUs).**
- $ **Construct a summary table of studies on MDRO epidemiologic and control features by setting/descriptive unit; the data are driven by setting. Add the element of prevention, i.e., how to overcome barriers.**
- $ **Delete the algorithm. Concerns centered on its complexity and format, i.e., the erroneous implication that the components can be dichotomized and that the presentation is sequential. Put the material in tabular form, and provide a rationale in the Background section. Consider a companion article that presents Aa model for operationalizing an MDRO control program.@**
- $ **The section on discontinuation/duration of contact precautions needs further consideration. Include a Abest guess@ recommendation based on guidelines issued by hospitals and states and the limited scientific information available. The recommendation can be Category II or an Unresolved Issue. Considerations include the setting, MDRO, condition of the patient, and antimicrobial use.**
- $ **Add a recommendation to review institutional antimicrobial susceptibility summary reports and perform an MDRO risk assessment at least annually to: 1) identify institutional target MDROs, 2) evaluate the effectiveness of the current control program, and 3) design and update an institutional MDRO surveillance and control program. Emphasize that every facility should proactively identify accessible expertise and resources to ensure preparedness for unexpected clusters and outbreaks.**

**Table 6**

- $ **Reword the recommendations to specify actions rather than outcomes.**

**Table 7**

- $ **Rework the table to focus on patient care rather than the environment.**

**General comments**

**Dr. James Steinberg noted that the Society for Healthcare Epidemiology of America (SHEA) is issuing guidelines on MDRO prevention that differ from the recommendations that are being considered by HICPAC, and he asked for suggestions for reconciling the differences. Committee members suggested that the divergence in views might derive from different goals of the two documents; whereas the goal of the HICPAC guideline is to decrease transmission of MDROs in healthcare settings, the goal of the SHEA document might be to decrease the overall burden of MDROs. Resource issues also come into play. The differences will likely become apparent during the public comment period. It might also be useful to request a presentation from a SHEA representative at the next meeting.**

**Dr. Pearson acknowledged the limitations and lack of clarity in the data but emphasized that HICPAC recommendations need to reflect the evidence base as much as possible, even if the data gaps result in many Unresolved Issues. All recommendations should include references to support the assigned category of evidence.**

**Next steps**

- $ **The authors will prepare a revised draft for presentation at the next HICPAC meeting. The draft will include references for every recommendation so that the Committee can weigh the evidence.**
- $ **The authors and Drs. Weinstein and Pearson will arrange to have the next draft reviewed by representatives from the long-term-care community.**

***GUIDELINE FOR DISINFECTION AND STERILIZATION IN HEALTHCARE SETTINGS***
**B REVIEW OF PUBLIC COMMENTS**
**Dr. William Rutala**

**Dr. Rutala reported on the 21 public comments that he had received and reviewed as of June 12, 2002. The deadline for submission of all comments was June 14, 2002. Dr. Rutala=s assessment is that most of the comments received to date are constructive, generally not controversial, and can be easily integrated into the draft document. The only issues addressed by more than one respondent were prions (3), toxicity/occupational risks (2), and surface disinfection (2). Dr. Rutala=s responses to the public comments are summarized below:**

**<u>Disinfection</u>** B **The surface disinfection recommendation will be changed to Category II. Recommendations for disinfection of dental items will be made consistent with CDC=s new dental infection control guideline (in draft).**

**<u>Toxicity/occupational risks</u>** B **When relevant, toxicity of disinfectant use to patients and/or healthcare workers will be noted. Health concerns regarding disinfection and sterilization will be addressed consistently for each product and process. He requested references that report health effects to patients and healthcare workers at exposure durations and levels encountered in the healthcare setting.**

**<u>Agent inactivation</u>** B **Additional information on inactivation of rotavirus and bioterrorism agents will be added.**

**<u>Prions</u>** B **A recommendation to use CJD special reprocessing for instruments that contact eye tissue of patients at high risk for CJD will be added. In response to a suggestion to**

**apply routine sterilization that inactivates prions (all surgical instruments at 134°C -138°C for 18 minutes), Dr. Rutala acknowledged that this procedure would eliminate any theoretic possibility of risk. However, in his view, the epidemiology of CJD suggests that current practices are adequate and that the recommended enhanced procedures (e.g., instruments associated with blind brain biopsy require special prion reprocessing) lower risk beyond current practice. Cost and time associated with universal use of CJD sterilization are not warranted based on the epidemiology of CJD (two cases of transmission associated with depth electrodes not sterilized; four suspect cases, only one of which has a known index case; no cases associated with standard techniques of steam sterilization; no cases since 1980) and experimental data on CJD infective tissues. A section on variant CJD (vCJD) will be added.**

**<u>Endoscope reprocessing</u>** B **Refinements suggested at a June 2002 consensus meeting on reprocessing of endoscopes will be integrated into the Guideline. Dr. Rutala will address the inconsistency between Recommendation 2a and Recommendation 7e.**

***Discussion*** B **Dr. Larry Schonberger, CDC, opined that the recommendations related to prion disease are controversial. He has submitted formal comments to Dr. Pearson on behalf of CDC staff.**

**In response to FDA liaison Dr. Chiu Lin=s request that the FDA should have a final look at the Guideline before it is submitted for publication, Dr. Pearson clarified the mechanisms for FDA comment, i.e., liaison representation on the Committee and submission of comments during the public comment period. Dr. Weinstein assured Dr. Lin that HICPAC members and authors are sensitive to the need for collaboration and synchronicity with other federal agencies and expressed a willingness to participate in conference calls with FDA to address any areas of disagreement before finalization of the Guideline.**

**TRANSMISSIBLE SPONGIFORM ENCEPHALOPATHIES: UPDATE AND RECENT FDA CONCERNS AND ACTIVITIES**
**Dr. David Asher, FDA**

**Transmissible spongiform encephalopathies (TSEs), or prion diseases, are fatal degenerative brain diseases that occur in humans and some animal species. They are characterized by microscopic vacuoles and the deposition of amyloid (prion) protein in the grey matter of the brain. All forms of TSE are experimentally transmissible. Several recent events related to TSEs have public health implications. Bovine spongiform encephalopathy (BSE) has been recognized in cattle in several more countries. Variant CJD (vCJD) has been reported in several countries, including one person in the United States (former UK resident). Chronic wasting disease of deer and elk has been found west in two new states (Nebraska, Wisconsin) in addition to the original focus in Colorado and Wyoming.**

**The FDA is trying to develop consistent, rational TSE policies regarding the safe sourcing of raw materials and the effective decontamination of facilities and equipment used to manufacture regulated products. FDA=s main concern related to human TSEs (CJD and vCJD) is to prevent iatrogenic transmission by regulated products. The agency is committed to a process of risk management that requires risk assessment based on research, surveillance, and expert advice, and a consistent policy across federal agencies.**

**Dr. Asher disclosed that BSE has been reported in native cattle in 21 countries, with most cases reported from the United Kingdom (>182,000 cattle to date; 1,189 in 2001). As of June 2002, 132 cases of probable or confirmed vCJD had been reported worldwide. Humans have been accidentally infected with TSE agents of both human and animal origin from contaminated products. TSEs are not known to spread by contact from person to person, but transmission can occur during invasive medical interventions. Exposure to infectious material through the use of human cadaveric-derived pituitary hormones, dural and corneal homografts, and contaminated neurosurgical instruments has caused human TSEs. There is currently no reliable antemortem screening test for persons or animals infected with TSE agents and no validated therapy.**

**Given that regulatory actions have interrupted the transmission of TSEs in a few situations (e.g., elimination of kuru), public health authorities have a responsibility to take rational steps to reduce opportunities for exposure to TSE agents. Risk is typically assessed in four stages: 1) identify the hazard, 2) characterize the hazard, 3) assess the exposure to the hazard, and 4) characterize the risk, estimated from the probable effective exposure and the dose-response. The effective exposure to a TSE agent, i.e., an exposure sufficient to infect a recipient, depends on the dose of the agent, host susceptibility, and route of exposure (e.g., direct introduction into the central nervous system vs. less efficient routes). From these considerations it is possible to make decisions about the need for and level of precautions. If TSE decontamination is required, the question is how stringent it should be.**

**The growing trend in risk assessment is toward use of quantitative approaches that express risk as an overall probability. Quantitative risk assessment tries to represent the complexity of real situations and identify the steps leading to an adverse event. The method requires reliable collection of adequate, accurate, quantitative data and descriptions of all assumptions and constraints. To account for biological variability and uncertainty, probabilities are expressed as distributions. Sensitivity analysis is performed to demonstrate the influence of assumptions on the final risk estimate. As with all types of risk assessment, problems include unavoidable biases and disagreement about assumptions.**

**Decisions about risk can also invoke the Aprecautionary principle,@ a European legal concept that has no status in U.S. law. This states that: A... where there is uncertainty as to the existence or extent of risks to human health ... institutions may take protective measures**

**without having to wait until the reality and seriousness of those risks become fully apparent.@ The precautionary principle is based on the right of society to establish a level of protection against risk that it deems appropriate. The principle describes an approach to managing a risk that cannot be accurately and confidently assessed. Precautionary decisions are political in that they are based on both science and public concern. The FDA is expected to take precautionary actions in some situations; TSEs are likely one such instance. Precautionary decisions should be proportional to the level of protection chosen, non-discriminatory in application, consistent with similar measures taken previously, based on risk-benefit analysis, subject to review as new information becomes available, and explicit in assigning responsibility for producing scientific information to improve the assessment of risk.**

**A problem is that risk assessments and expert advice to regulatory authorities regarding appropriate handling of surgical instruments potentially contaminated with TSE agents have not been consistent. Examples include the following estimates from the UK (CJD Incidents Panel. Consultation Paper 2001) and the United States (Rutala and Weber. Clin Infect Dis 2001):**

- **Infectivity of CJD patient tissue touching an instrument**
  - **UK estimate for brain: _$10^7$ human ID50/g**
  - **US estimate for brain: _$10^5$ human ID50/g**
- **Reduction in infectivity remaining on an instrument after decontamination**
  - **UK estimate for cleaning: $10^2$ - $10^3$ reduction**
  - **US estimate for cleaning: $10^4$ reduction**

**These differences in estimates are important in that they lead to substantially different expert advice regarding surgical instruments exposed to a CJD agent:**

- **UK: A While the risk of transmitting CJD through invasive medical procedures is uncertain, precautionary action should be taken ... withdrawing all those that *might* be implicated as soon as possible. ... In general, instruments that have undergone ten or fewer decontamination cycles since being used on the index patient with CJD should be incinerated.@**
- **US: A... [Cleanable critical or semicritical] devices [in contact with high-risk tissues of CJD patient] ... (e.g., surgical instruments) can be cleaned and then sterilized by autoclaving either at 134$^o$C for _18 minutes in a prevacuum sterilizer or at 121$^o$C-132$^o$C for 1 hour in a gravity displacement sterilizer.@**

**Thus, the uncertainty drives the estimates, the estimates drive the advice, and the result can be quite different based on different perceptions of risk. The limitations of the data on which the estimates were based only increase the uncertainty. Limitations of the data on**

**infectivity of materials from humans with TSEs center on small sample sizes, species barriers, unknown limits of detection, and variations in the distribution of infectivity in humans with TSEs. Uncertainty about the level of infectivity in tissues of persons dying with CJD is the likely source of the discrepancies in the UK and U.S. estimates cited above.**

**In March 1999, the World Health Organization (WHO) convened a Consultation on Caring for Patients and Hospital Infection Control in Relation to Human Transmissible Spongiform Encephalopathies to address these issues. Their recommendations for handling of TSE-agent-contaminated surgical instruments included the following:**

- $ **Prevention of contamination is always preferred; shield instruments with disposable materials.**
- $ **Incinerate contaminated instruments when possible.**
- $ **Discourage reuse of potentially contaminated equipment.**
- $ **Keep contaminated equipment and surfaces moist.**
- $ **Use only decontamination regimens that are authoritatively validated for eliminating TSE agents.**
- $ **Use single-use instruments whenever possible.**
- $ **For maximum safety, destroy re-usable instruments.**
- $ **Quarantine instruments that are potentially exposed to TSE agents until diagnosis of TSE is ruled out.**
- $ **Use the best validated methods available.**
- $ **Use two different methods whenever possible.**

**The WHO expert consultants also stated that:**

- $ A**In some healthcare situations [when instruments cannot be discarded] ... less effective methods may be preferred.@**
- $ **Decontamination is** A**context-dependent@ and may not be completely effective under all circumstances.**
- $ **Cleaning facilitates decontamination by reducing both infectivity and organic load.**

**Preferred methods recommended by WHO, in order of decreasing effectiveness, are:**

1. Incinerate
2. Immerse in sodium hydroxide (NaOH); heat in a gravity displacement autoclave at 121$^{o}$C for 30 min; clean; rinse; subject to routine sterilization.
3. Immerse in NaOH or sodium hypochlorite for 1 hr; transfer to water; heat in a gravity displacement autoclave at 121$^{o}$C for 1 hr; clean; subject to routine sterilization.
4. Immerse in NaOH or sodium hypochlorite for 1 hr; rinse; heat in a gravity displacement autoclave (121$^{o}$C) or porous load autoclave (134$^{o}$C) for 1 hr; clean; subject to routine sterilization.

5. Immerse in NaOH; boil for 10 min at atmospheric pressure; clean; rinse; subject to routine sterilization.

6. Immerse in sodium hypochlorite (preferred) or NaOH (alternative) at room temperature for 1 hr; clean; rinse; subject to routine sterilization.

7. Autoclave at 134$^{o}$C for 18 minutes. (In worse-case scenarios [brain tissue bake-dried on to surfaces], infectivity will be largely but not completely removed.)

The draft HICPAC Disinfection and Sterilization Guideline recommends the latter option, i.e., heat only. Based on the WHO review, however, Dr. Asher concluded that:

$ **Application of moist heat alone, although effective in some contexts, has not consistently inactivated all TSE infectivity in several experimental studies.**

$ **Combined or sequential applications of moist heat and chemical inactivation using NaOH or sodium hypochlorite have eliminated all detectable TSE infectivity in several studies but are not feasible for some instruments.**

$ **On theoretical grounds, a combination of highly effective modern cleaning methods and moist heat may prove effective in freeing contaminated instruments of TSE infectivity.**

**Possible Arules@ for making decisions on risk management include utility-based decision rules (assume a remote risk to achieve substantial benefit) and technology-based decision rules (use the best-available technology to protect vulnerable populations from remote risks, even at great cost). Clearly, combined modern cleaning methods and heat or chemical decontamination procedures for TSE agents should be validated in experimental studies. Absent reassuring validation studies, however, regulatory agencies may be reluctant to rely on risk assessments to develop risk management strategies, especially before experts have reached consensus on the assessments.**

***Discussion*** **B Dr. Rutala emphasized that there have been no published reports of CJD transmission via surgical instruments in the United States since 1976. Dr. Asher agreed but noted that, given the weaknesses of surveillance, an absence of reports is not proof of an absence of transmission. This discussion was continued later in the meeting.**

**PUBLIC COMMENT**

**Dr. Larry Schonberger, CDC, agreed that the lack of reports reflects the weaknesses of the surveillance system and does not prove an absence of cases. He questioned HICPAC=s rationale for the draft recommendation of disinfection using heat only and breaking the recent WHO consensus for use of sodium hydroxide and heat. He noted his opinion that pending the findings of ongoing studies it is premature to depart from the consensus of the WHO expert panel and issue a recommendation that is not only inconsistent with that of**

**other policy-making bodies but is also WHO=s least preferred option.**

**PUBLIC COMMENT**

**Dr. Lynne Sehulster spoke on behalf of herself and Dr. Matthew Arduino. She made these comments on the Disinfection and Sterilization Guideline:**

- $ **The Guideline needs to be consistent with CDC=s mission and should reflect CDC=s close partnership with sister agencies (e.g., FDA, EPA).**
- $ **The Background text should support the recommendations.**
- $ **Much of the information in the Background section may be more didactic than practical.**
- $ **High-level disinfection is the standard for the hemodialysis setting.**
- $ **Provide the microbiologic rationale for the use of tap water for rinsing endoscopes.**
- $ **Be sure that the recommendations accurately reflect the different types of endoscopes. These types should be defined and differentiated.**

**Dr. William Rutala**

**In response to Dr. Asher=s presentation and the subsequent comments, Dr. Rutala noted that, given the overwhelmingly few data on the risk of transmission of TSEs associated with surgical instruments, conclusions must be derived from inactivity date, infectivity data, and epidemiologic data. These suggest that the risk for transmission via surgical instruments is theoretical. The message of the current draft recommendation is that traditional procedures are preventing CJD transmission associated with surgical procedures on unknown cases.**
**Given the controversy surrounding this issue, Dr. Weinstein informally polled the HICPAC members on their preference regarding disinfection of surgical instruments from known CJD patients. The members overwhelmingly favored the WHO recommendations over the recommendations in the current draft, citing the growing pool of vCJD cases, the preference for consistency among recommendations, and the sense that, given two sets of guidelines, practitioners will retreat anyway to the most conservative option.**

**Next steps will include the following:**

- $ **Dr. Pearson will forward all remaining public comments to Dr. Rutala.**
- $ **Dr. Rutala will revise the Guideline as suggested.**
- $ **CDC will convene a conference call with FDA, if needed, and submit the Guideline for review by the FDA and other liaison agencies.**
- $ **Dr. Rutala will prepare a revised draft for public discussion at the next HICPAC meeting.**

**NATIONAL QUALITY FORUM AND SAFE PRACTICES**
**Dr. Steve Jencks**

**The National Quality Forum (NQF) is a not-for-profit membership organization created to develop and implement national standards for healthcare quality measurement and reporting. At the last HICPAC meeting, Dr. Jencks presented a list of draft goals and practices to be included in an NQF compendium of core, evidence-based practices to improve the safety of health care. HICPAC members suggested changes to the draft based on evidence-based HICPAC recommendations. These comments were subsequently incorporated into a revised list of goals and practices, which Dr. Jencks summarized as follows:**

8. Elevating head bed to $>30^0$ in mechanically ventilated patients to prevent pneumonia
9. Precautions to prevent **central venous catheter-related infections**
10. Prevention of surgical wound infections
11. Measures to prevent interpersonal transmission (e.g., hand hygiene)
12. Offering influenza vaccination to healthcare workers and patients
13. Use of antibiotic-impregnated central venous catheters
14. Selective digestive tract decontamination
15. Use of endotracheal tubes that enable continual aspiration
16. Perioperative oxygen supplementation

Next steps for NQF are to: prepare a revised draft and post it on the website for comments; prepare a revised draft for vote by NQF members; finalize the document, and distribute it by the end of the calendar year.

***Discussion*** – HICPAC members clarified that Items 1-5 should be designated as "recommendations" and that Items 6-9 should be designated as "practices needing additional research." They also advocated changing Item 5 to recommend "strongly encouraging" influenza vaccination for healthcare workers and patients. Drs. Weinstein, Pearson, and Jencks will finalize HICPAC comments and submit them formally to NQF.

**WATERBORNE DISEASE ACTION PLAN**
**Dr. Lorraine Backer, CDC**

At the May 2001 meeting of the NCID Board of Scientific Counselors, the members supported an infectious waterborne disease program and recommended that CDC should: 1) develop a plan for surveillance, investigation, and research, 2) form an internal working group to coordinate development of the plan, 3) enlist outside expert review, and 4) use the plan to seek implementation resources. Subsequently, CDC convened a CDC/ATSDR working group to

develop a first draft. In March 2002, CDC shared the draft with an external group of stakeholders. A final draft is scheduled for completion in July 2002, with publication of the plan and derivatives slated for the end of 2002.

The vision for the proposed plan is AHealthy Water for All.@ The mission is to provide leadership to the public health community and partners through service, response, and research to ensure healthy water. Goals address drinking water, recreational water, homeland water security, and international water issues. Implementation strategies and activities are designed to: 1) assess the burden of waterborne illness and identify emerging threats, 2) enhance state, federal, and international capacity to address water-related illness, 3) protect people from water-related illness through public health action, and 4) evaluate the effectiveness of interventions.

***Discussion*** B HICPAC members were concerned about a lack of representation from the healthcare delivery system among the developers of this document. They questioned the emphasis on biofilms and the exclusion of other, more important water-related issues that are applicable to the healthcare setting, specifically those that are delineated in the Environmental Guideline (e.g., water quality for dialysis). They advocated the inclusion of AHealthcare Settings@ as a separate section in the action plan (comparable to sections on recreational water, drinking water, etc.) that would include topics such as legionella, dialysis, dental water lines, mycotic agents, and ICU settings. HICPAC representatives will forward comments on the draft plan to Dr. Matt Arduino.

**NOSOCOMIAL TRANSMISSION OF INFLUENZA**
**Dr. Carolyn Bridges**

Healthcare-acquired influenza has been reported in long-term-care facilities, hospital wards, specialty units, and other healthcare settings. Nosocomial outbreaks usually occur simultaneously with community-wide outbreaks, making it difficult to identify the source of infection. Healthcare workers are often implicated as vectors. Although vaccination is the primary prevention method, only 38% of U.S. healthcare workers received influenza vaccine in 2000.

Studies on the transmission of influenza in healthcare settings are limited, and interpretations of findings vary substantially. Most studies are either animal or human experiments under artificial conditions or outbreak investigations. Findings suggest that contact, droplet, and airborne routes are all possible modes of influenza transmission, but the relative contribution of each transmission mode is unclear. Droplet transmission appears to be the most important.

Bean et al (*JID* 1982;146) studied the survival of influenza viruses on surfaces and documented the potential for indirect contact transmission. Virus was recoverable from nonporous surfaces (plastic, stainless steel) for >24 hours and transferable to hands for up to 24 hours. Virus was recoverable from cloth and tissue surfaces for 8-12 hours but transferable to hands for only 15 minutes. Virus was viable on hands for <5 minutes and only at high viral titers.

A mouse study by Loosli et al (*Proc Soc Exp Biol Med* 1943;53) of the effect of humidity on survival of influenza virus in the air showed prolonged viral infectivity at lower humidity (raising the possibility for contact transmission) and increased infectivity after sweeping (suggesting possible airborne transmission). Whether the results can be extrapolated to humans is unclear. Another mouse study by Schulman (*J Exp Med* 1967;125) provided evidence for both direct and droplet spread as well as airborne transmission. Infected mice produced influenza-infected particles of <10 microns; ventilation rate was inversely related to transmission.

Blumenfeld et al (*J Clin Invest* 1959;38) investigated an outbreak in a hospital ward during the influenza pandemic of 1957-58. Findings suggested person-to-person transmission (droplet or direct contact), with healthcare workers as vectors. The outbreak occurred in a setting with a highly susceptible population (little immunity, new subtype) and likely low infectious doses. An outbreak of influenza aboard a commercial airliner, reported by Moser et al (*Am J Epi* 1979;110), was determined to be a point-source outbreak from a new variant. Transmission was facilitated by: 1) enclosure in a small space with low air-exchange rates, 2) an acutely ill patient in the highest viral-shedding period, and 3) location of the index case near the plane=s amenities. Transmission was consistent with either droplet or airborne spread.

In a recently published review article on influenza in acute-care settings (*Lancet* 2002;2), Salgado et al noted that sneezing generates particles of varying sizes, with upper respiratory symptoms likely generating from large droplets and lower respiratory symptoms from small droplets. University of Virginia researchers report the occurrence of rare nosocomial influenza cases even with positive-pressure private rooms and propose that the Aexplosive@ nature of some nosocomial outbreaks may be due to a common mobile source, i.e., an ill healthcare worker. Unpublished data from Dr. Caroline Hall (University of Rochester), who conducted the classic RSV transmission studies, suggest that most nosocomial spread of influenza among infants is by large droplet and possibly fomite transmission.

Dr. Bridges= conclusions from the literature are that contact, droplet, and airborne transmission are all possible with influenza. The virus is transmissible even after drying; it is likely that some infectious particles are <10 microns; and infection rates are affected by subnormal ventilation rates. In outbreak settings, however, droplet and contact transmission are observed most often, and healthcare workers have been shown to be important as vectors in nosocomial spread. The benefits of negative-pressure rooms have not been studied. Recommendations need to consider the risk/benefit ratio, which may differ by setting (e.g., new drifted variant or pandemic spread), susceptibility of the exposed population, and the practicality of various options. Although airborne transmission may occur, clinical data suggest that droplet spread is most important.

**OVERVIEW OF HICPAC GUIDELINE ACTIVITIES**
**Dr. Robert Weinstein**

Assessment of HICPAC guideline development process B Dr. Siegel has designed an instrument to solicit from HICPAC members and authors opinions about the guideline development process. Authors will be queried about: 1) the quality of communication from CDC and HICPAC regarding the initial charge and the process, 2) satisfaction with the process and the product, 3) strengths/weakneses of the process. HICPAC members will be queried about: 1) the quality of communication with guideline authors, 2) response to input, 3) satisfaction with authors= presentations at HICPAC meetings, 4) strengths/weaknesses of the process, and 5) suggestions for change.

Antimicrobial stewardship guideline B HICPAC is still planning a collaboration with IDSA (Dr. Neil Fishman) to develop a guideline related to antimicrobial stewardship, but progress has been slow. An update is tentatively planned for the next HICPAC meeting.

Working Group on Bioterrorism B A collaborative HICPAC/DHQP working group is being formed to provide leadership and guidance on bioterrorism preparedness and response related to infection control and other issues facing healthcare facilities. Chaired by Dr. Siegel, HICPAC members will include Dr. Weinstein, Dr. Chin, Dr. DeMaria, Dr. Schecter, and Ms. Underwood and, HICPAC Executive Secretary, Dr. Pearson. Other DHQP members have not been selected. Meetings will be held via conference call.

Guideline activities

- $ **The Disinfection and Sterilization Guideline will be revised for discussion at the next meeting and other comments received from the public will be reviewed.**
- $ **The Isolation Guideline will be revised for discussion at the next meeting.**
- $ **The Hand Hygiene Guideline is being redrafted in response to FDA comments. FDA concerns center on: 1) clarification that the Guideline does not apply to the food industry, 2) disclaimer language related to over-the-counter hand sanitizers, and 3) activity of alcohol products against viral agents. The Guideline is scheduled for publication in December 2002 in the MMWR.**
- $ **The IV Guideline will be published in the *MMWR* in July/August 2002.**
- $ **The Pneumonia Guideline will be disseminated for public comment in the *Federal Register*. Comments will be discussed at the next HICPAC meeting, after which the Guideline will be prepared for final publication.**
- $ **The Environmental Guideline has been completed. A comprehensive Executive Summary**

**plus recommendations and supporting references will be published in the *MMWR*. The full document will be posted on the DHQP website. A decision on making available hard copy versions of the full text is pending.**

**Publication issues B Because of constraints related to publication of HICPAC guidelines in the *MMWR* (e.g., page limitations, reference limitations, formatting issues, lag times of up to one year) and professional journals, the Committee is increasingly anxious to identify**

**alternative formats and venues (e.g., Government Printing Office) for publication of its guidelines. Given the amount of effort and time invested in developing and reviewing the guidelines and the importance of the final products, there is a need for a standing government process to facilitate and ensure prompt and complete dissemination of the guidelines. There is also interest in developing Aniche@ guidelines on topics such as burn units. Dr. Pearson requested creative ideas from the Committee members.**

**Dental Infection Control Guideline B HICPAC members will be asked to review the new Dental Infection Control Guideline, developed by CDC=s Division of Oral Health, before the draft is disseminated for public comment. The draft will be discussed at the next HICPAC meeting.**

**Liaison assignments B HICPAC members were reminded that they should attend meetings as representatives of HICPAC only at the request of Dr. Pearson or Dr. Weinstein.**

**HEPATITIS C AND HEALTHCARE PERSONNEL**
**Dr. Miriam Alter**

**Natural history**
**Recent data indicate that age is a more important predictor of the natural history of hepatitis C virus (HCV) infection than originally thought. Studies of three age cohorts followed for 20 years show that persons who acquire infection as young adults have lower rates of chronic infection and severe complications than those who are infected at later ages.**

**Healthcare-related transmission to patients**
**Healthcare-related HCV transmission is a relatively rare event that results primarily from unsafe injection practices (e.g., reuse of disposable needles and syringes, medication preparation, blood sample handling, sharps disposal, contaminated multi-dose vials). For example, a large outbreak of HCV infection in a private endoscopy practice in New York City in 2001 was attributed to an anesthesiologist who re-inserted used needles into multi-dose vials. The actual extent of the problem is unknown, however, because of the difficulty in detection. Preventive actions center on enforcing single use of disposable needles and syringes, limiting use of multi-dose vials to a single patient, and restricting multi-use vials to clean, centralized preparation areas.**

**Occupational transmission to healthcare workers**
**The average incidence of occupational transmission of HCV is 1.8% after unintentional needlesticks or sharps exposures from an HCV-positive source, with one study reporting that transmission occurred only from hollow-bore needles compared with other sharps. The HCV prevalence among healthcare workers is 1%-2%, which is lower than that for adults in the general population and ten times lower than that for hepatitis B virus infection**

**(before immunization).**

**Postexposure management**

**No postexposure prophylaxis is available for HCV. IG is not effective for postexposure prophylaxis, and there are no data on the postexposure use of antiviral agents to prevent HCV infection; antiviral agents are not FDA approved for this use. Recommendations for postexposure managment are to: 1) test the source for anti-HCV; 2) if the source is anti-HCV positive, test the worker for anti-HCV and alanine aminotransferase (ALT) activity at baseline and at 4-6 months, or, for earlier diagnosis, test for HCV RNA by PCR at 4-6 weeks; and 3) confirm all anti-HCV results reported as positive by enzyme immunoassay (*MMWR* 1998;47[RR-19]). There are no recommendations for restriction of activities during follow-up.**

**Antiviral therapy of acute hepatitis C**

**Antiviral treatment for acute HCV infection has generated significant publicity and controversy. Studies show that high SVR might be obtained if treatment is started early during the chronic phase. However, therapy is difficult and not without side effects, and 25%-50% of cases might resolve naturally if given the opportunity. There are no data on treatment of early infection without evidence of disease. The appropriate regimen is not known; an attempt to develop guidelines at a recent consensus conference was unsuccessful due to insufficient data.**

**Transmission from healthcare workers to patients**

**Worldwide, there have been eight published episodes of transmission from healthcare worker to patient. Most (two thirds) are unrelated to performance of invasive procedures; half are related to injection drug use by the healthcare worker (contamination of patients= narcotics through reuse of needles used for self-injection).**

**Management of HCV-positive healthcare workers**

**Recommendations are to: 1) refer HCV-positive healthcare workers for medical evaluation and management; and 2) follow strict aseptic technique and Standard Precautions. No work restrictions are currently recommended when there is no evidence of transmission.**

**The keys to preventing transmission of bloodborne pathogens in healthcare settings are engineering controls to prevent injuries and safe injection practices (e.g., single use of disposable injection equipment; avoidance of contamination of multi-use vials). Other preventive actions include Standard Precautions, appropriate cleaning and disinfection, hepatitis B vaccine for all healthcare workers at risk, and adherence to postexposure protocols.**

***Discussion*** **– HICPAC members noted that the infection control community needs to address the issue of injection drug use in healthcare workers.**

**SMALLPOX MEETING REPORTS**

**In June 2001, the Advisory Committee on Immunization Practices (ACIP) made recommendations for use of smallpox (vaccinia) vaccine to: protect persons working with orthopoxviruses, prepare for a possible bioterrorism attack, and respond to an attack involving smallpox. Before the terrorist attacks of September 11, 2001, DHHS began to increase public health preparedness through expansion of the existing stockpile of smallpox vaccine (Dryvax, Wyeth) by purchase of vaccine produced in cell culture (Acambis). The anthrax attacks in October 2001 resulted in accelerated production of additional doses of vaccine. This increased supply of vaccine allows for consideration of expanded vaccination options, which the ACIP will consider on June 20, 2002. In the interim, ACIP and CDC have convened a series of related meetings, two of which were attended by HICPAC members.**

**Smallpox ACIP/NVAC Working Group, 8-9 May 2002**
**Dr. Jane Siegel**

**On May 8-9, 2002, the ACIP/NVAC Smallpox Working Group met to discuss considerations related to revised/supplemental ACIP recommendations and to engage in preliminary discussions. The Working Group emphasized that the stimulus for revised recommendations is the availability of vaccine, not a change in the threat assessment. Introductory presentations addressed topics including: vaccine supply, vaccination options, logistics of administration, political and legal issues, and education and communication issues. Subsequent presentations covered: clinical and epidemiologic features of smallpox, vaccine efficacy and vaccination strategies, vaccinia adverse events, effect on the blood supply, care and treatment of smallpox in the modern era, considerations of special population groups, occupational health issues, and preparedness planning. Dr. Siegel highlighted several topics related to infection control:**

- **Care of vaccination site B Issues include type of covering, selection of covering based on patient type, and work restrictions for vaccinated healthcare workers.**
- **Care of 100-dose vials re-entered with fresh needles**
- **Respiratory protection**
- **Negative-pressure rooms**
- **Protection of hospital ventilation systems**

***Discussion*** **B HICPAC=s recommendations related to care of the vaccination site are to: 1) use the most protective dressing, 2) conduct additional studies, 3) develop specific guidelines for disposal of dressings, and 4) provide guidance on how to change dressings for 21 days.**

**Meeting of National Organizations on Vaccinia Vaccine Use, 30 May 2002**

**Dr. William Scheckler**

**This meeting was convened to obtain guidance for the ACIP on three questions:**

- $ **With no known cases of smallpox worldwide, should there be any change in the current recommendation against vaccinating members of the general public pre-event?**
- $ **In addition to laboratorians who work with viruses related to smallpox, are there others in specific occupational groups who should be vaccinated to enhance smallpox preparedness? If so, what guidelines should be used to determine who should be vaccinated pre-event?**
- $ **Should there be any change(s) in the recommendation that surveillance and containment (ring vaccination) should be the primary control and containment strategy?**

**Dr. Scheckler noted several points generated from meeting presentations and discussion:**

- $ **Smallpox in the field is much less contagious than measles.**
- $ **Smallpox spread by the airborne route is rare and requires infected persons who have multiple mouth lesions and a severe cough.**
- $ **Persons with prior live vaccinia immunization have some level of both cellular and humoral immune memory.**
- $ **Vaccinia complications can be severe, even with VIG.**
- $ **The new vaccine passed through human cell lines could be either more or less problematic than the current Dryvax product.**
- $ **A total of 160 members of CDC rapid response teams have been vaccinated. The notion of pre-event vaccination of small numbers of similar personnel in each state received some support at the meeting. Other changes in the current ACIP recommendations received little or no support.**
- $ **As with anthrax, a smallpox event might not be consistent with Aold data.@ The media, public, and political response will be enormous and only partly predictable.**

**Based on the presentations and discussion at this meeting, Dr. Scheckler added the following issues for HICPAC consideration:**

- $ **Are HICPAC-recommended hand hygiene products effective against vaccinia and variola viruses?**
- $ **Which healthcare workers should not receive vaccinia vaccine?**
- $ **Should laboratory workers, especially those working in viral laboratories that Arule out@ specimens, be vaccinated?**
- $ **Should previously vaccinated healthcare workers be the first to receive the new**

**vaccine?**

***Discussion***

**Ms. Fauerbach reported that submitted written comments to ACIP the infection control ramifications of the planned smallpox vaccination (See Attachment).**

**LIAISON REPORTS**

**Advisory Committee on Elimination of Tuberculosis (ACET)**
**Dr. Alfred DeMaria; Dr. Michael Tapper**

**The TB infection control guidelines are still in progress; the most controversial issue continues to be fit testing of respirators.**
**The FDA has approved the quantiferon assay, and a manufacturer has been identified. However, the utility of the test in clinical practice remains to be evaluated. Dr. Rick O=Brien, DTBE/CDC, is drafting guidelines.**

**NCID Board of Scientific Counselors (BSC), 2-3 May 2002**
**Dr. Robert Weinstein**

**NCID is undergoing a reorganization, and a number of supervisory positions are occupied by acting personnel. The FY02 Infectious Disease budget for NCID increased by 8.5%. CDC=s Bioterrorism budget increased by 1200% to $2.3 billion, including $918 million that must be obligated by August 30, 2003, to upgrade state and local health department capacity, and $512 million for smallpox vaccine and bifurcated needles, to provide one dose for every U.S. citizen. CDC plans to have the ability to deploy 285 million doses of smallpox vaccine within 5 to 7 days, if needed. Participants engaged in discussions of the need to vaccinate first responders, healthcare personnel, and other high-risk groups pre-event.**

**The Institute of Medicine is updating its 1992 landmark report on emerging infectious diseases. The new report, to be edited by Drs. Joshua Lederberg and Margaret Hamburg, is due for release in Summer 2002. NCID program updates addressed West Nile virus (WNV), waterborne diseases, and malaria. There has been southwestern expansion of WNV in the United States since 1999, with two major foci in 2002 (northeastern U.S. and southeastern U.S.); significant surveillance and training efforts are underway. The Healthy Water Action Plan is due to be published by the end of 2002; there has been a shift in the focus of concern from source water to treatment water to distribution systems because of increasing ease of contamination as water moves closer to the point of use. Discussion about the possibility of a program to eliminate malaria in Mexico is ongoing.**

**Breakout groups focused on bioterrorism, global infectious disease strategies, and antimicrobial resistance. NCID=s new Associate Director for Minority and Women=s Health made a presentation on proposed and priority activities.**

**Secretary=s Advisory Committee on Xenotransplantation (SACX), 29-30 November 2002**
**Dr. William Scheckler**

**Participants discussed proceedings from recent meetings on xenotransplantation, met in working groups on the science of xenotransplantation and informed consent issues, and were updated by the FDA on applications for new drugs in the area of xenotransplantation. The main concern continues to be transmission of an unexpected or potentially unknown infection from an animal cell line or animal organ to the human recipient and potentially beyond. Porcine endogenous retroviruses are generating the most concern, but the risk is speculative.**

**DHQP UPDATE**

**National Healthcare Safety Network**
**Dr. Theresa Horan**

**DHQP is proposing a National Healthcare Safety Network (NHSN), envisioned as a voluntary, confidential, web-based reporting and knowledge system for patient and healthcare worker safety information. The goals are to improve patient and healthcare worker safety by providing: 1) protocols for monitoring adverse events associated with devices, procedures, and medications, 2) comparative data for performance improvement, and 3) access to prevention tools, lessons learned, and best practices. NHSN will integrate and replace three existing patient and healthcare worker surveillance systems: National Nosocomial Infections Surveillance System (NNIS), National Surveillance System for Healthcare Workers (NaSH), and the Dialysis Surveillance Network (DSN). The system will also be open to all other healthcare delivery entities. It will be built on standards to allow data integration and sharing, with access by a common user interface through a web portal. An integrated data repository will be housed at CDC.**

**The knowledge system will be designed to: 1) facilitate timely data sharing while maintaining data security, integrity, and confidentiality, 2) minimize user burden, 3) allow participation by all healthcare delivery entities, and 4) integrate with other partners. The system will be a source of prevention tools and best practices and a source for performance measurement data. It will incorporate automatic triggers/alerts for selected adverse events or near misses (sentinel events that signal an immediate response; unusual events that might signal a preventable threat to patient safety). The system will be structured around three components: patient safety (based on NNIS and dialysis systems), healthcare worker safety (based on NaSH), and research and development. Each component will include a series of**

**modules. For example, the patient safety component will include modules for device-associated, procedure-associated, and medication-associated adverse events. Modules will, in turn, include a series of events/options. Details on enrollment and protocols will be available on the DHQP website.**

**Application of the Toyota Production System (TPS) to Healthcare Systems**
**Dr. John Jernigan**

**The Pittsburgh Regional Healthcare Initiative (PRHI) is a regional coalition formed by a group of civic leaders in 1997 in Pittsburgh. PRHI brings together all of the region=s major healthcare facilities, insurers, employers, physicians, and corporate leaders to pursue a common goal: to achieve the best patient outcomes through superior health systems performance. All involved came to realize that the challenges facing health care are symptoms not of faulty healthcare workers but rather of faulty, error-prone systems that do not focus on patients at the point of care.**

**PRHI=s unique approach to perfecting the healthcare system is modeled on work-organization strategies from the Toyota Production System (TPS). The TPS approach is to organize complex systems of work in a way that allows everyone to learn from errors and problems, improving healthcare delivery processes quickly, frequently, and at low cost. This system is based on four principles: 1) specify the work of individuals for the content, sequence, timing and outcome of their activities, 2) make connections between customers and suppliers simple and direct, 3) simplify the pathways for all goods and services, and 4) ensure that improvement happens where the work is done, i.e., at the point of patient care. In TPS-managed organizations, the design of nearly all work activities are specified in their design, tested with every use, and improved close in time, place, and person to the occurrence of every problem. PRHI is adapting TPS to the healthcare setting by creating problem-solving laboratories, called Learning Lines, in several hospital units in the region. A Learning Line is a small hospital unit (or sub-unit) organized around the principles of TPS. At the point of patient care, the workers focus on the goal of meeting patient needs, one patient at a time. One the Learning Line, everyone in the care continuum works toward the ideal: delivering patient care on demand, defect-free, one-by-one, immediately, without waste, in an environment that is physically, emotionally, and professionally safe.**

**All personnel work under the guidance of a Teacher. When a problem hinders work, a specially assigned Team Leader takes the lead. Rather than interrupting those actually performing the work, the Team Leader fixes the immediate problem but then begins researching the problem by determining what happened. As the problem=s origins become known, the affected work teams design solutions immediately, using scientific methods. With a Learning Line, the hierarchical concept of the chain of command yields to the idea of a Help Chain, or pathway for assistance, where managers and executives become partners in problem solving. Team Leaders engaged in problem solving are free to pull**

**assistance as needed to the point of patient care from the hospital=s full administrative chain. Learning Lines also serve as classrooms where persons from other units and other hospitals are taught.**

**This model has many beneficial effects. It creates a culture of shared learning, empowers healthcare workers and facilitates success, enables healthcare professionals to spend more time doing front-line care, solves multiple problems at the point of care, and provides cost savings.**

**ACTION PLANS**

**Dr. Chinn**

- $ **Complete the Environmental Guideline.**
- $ **Review guidelines in preparation.**
- $ **Participate in the Working Group on Bioterrorism.**
- $ **Complete the tool designed to assess the guideline development process.**

**Dr. DeMaria**

- $ **Identify another HICPAC representative to attend ACET meetings.**
- $ **Review guidelines in preparation.**

**Ms. Fauerbach**

- $ **Email to HICPAC members the APIC, SHEA, NFID, CHICA response letter on the proposed smallpox vaccination plan.**

**Dr. Pearson**

- $ **Investigate the possibility of disseminating HICPAC guidelines through GPO.**
- $ **Disseminate the draft Dental Infection Control Guideline to HICPAC members for review.**
- $ **Participate in the working group on Bioterrorism.**
- $ **Assist in development of the assessment tool for the guideline development process.**
- $ **Query journal editors about policies/practices regarding industry support of guideline publication.**
- $ **Facilitate the finalization and publication of guidelines.**
- $ **Forward additional public comments on the Disinfection/Sterilization Guideline to Dr. Rutala.**

**Dr. Rutala**

- $ **Respond to comments on and revise the Disinfection/Sterilization Guideline.**
- $ **Review HICPAC guidelines in preparation.**

**Dr. Scheckler**

- $ **Attend SACX meetings.**
- $ **Participate in the Working Group on Bioterrorism.**
- $ **Review guidelines in preparation.**
- $ **Complete the guideline development assessment tool.**

**Dr. Siegel**

- $ **Prepare the next draft of the Transmission Prevention Guideline.**
- $ **Chair Working Group on Bioterrorism.**
- $ **Finalize tool to assess guideline development process and distribute it to members and authors.**
- $ **Participate in monthly conference calls.**

**Ms. Stover**

- $ **Review guidelines in preparation.**
- $ **Complete guideline process assessment tool.**
- $ **Follow through with tasks as assigned.**

**Dr. Weinstein**

- $ **Review guidelines, and assist in finalizing those that are in progress. Arrange/conduct conference calls with representatives from FDA and other agencies, as appropriate.**
- $ **Work with Dr. Pearson on guideline publication plans.**
- $ **Participate in the Working Group on Bioterrorism.**
- $ **Attend BSC meetings.**
- $ **Work with Drs. Pearson and Jencks to facilitate interaction with the National Quality Forum.**
- $ **Help analyze findings from the assessment of the guideline develop process.**
- $ **Communicate with Neil Fishman (IDSA) about the antimicrobial stewardship guideline.**
- $ **Make arrangements for the next meeting.**

**FUTURE MEETINGS**

**Tentative dates for future HICPAC meetings are:**

- $ **October 21-22, 2002**
- $ **February 24-25, 2003**